WHAT IS CLAIMED IS:

1. An optical equipment for forming an object image on a predetermined plane via an optical system including a movable lens that moves along an optical axis, comprising:

lens drive means for driving said movable lens;

first storage means for storing control information for controlling a position of said movable lens;

second storage means for storing correction data for correcting the control data stored in said first storage means; and

control means for controlling said lens drive means on the basis of the control information in said first storage means and the correction data in said second storage means.

2. The equipment according to claim 1, further comprising selection means for selecting whether or not said control means uses the correction data in said second storage means.

3. The equipment according to claim 1, wherein said second storage means comprises a rewritable storage device.

4. The equipment according to claim 1, wherein the correction data is difference information between theoretical control information and true control information.

5. The equipment according to claim 1, further comprising imaging means for forming the object image.

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6. The equipment according to claim 1, further comprising:

a camera unit having imaging means for forming the object image; and

a lens unit having said control means and detachably connected to said camera unit.

7. A computer-readable storage medium storing a program for executing a sequence for controlling driving of a movable lens using control information for controlling a position of said movable lens and correction data for correcting the control information.

8. The medium according to claim 7, further storing a program for executing a sequence for selecting whether or not the correction data is used.

9. The medium according to claim 7, wherein the correction data is difference information between theoretical control information for controlling a position of a movable lens, and true control information.

10. A computer-readable storage medium storing difference information between theoretical control information for controlling a position of a movable lens, and true control information.

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11. A lens apparatus comprising:

movable lens means for forming an object image on a

predetermined plane while moving along an optical axis;

drive means for driving said movable lens means;

connection means for detachably attaching an external device;

detection means for detecting attachment/detachment of said external device;

first storage means for storing first control information for controlling a position of said movable lens means when said external device is attached;

second storage means for storing second control information for controlling the position of said movable lens means when said external device is not attached; and

control means for reading out contents of said first or second storage means in accordance with a detection result of said detection means, and controlling said drive means using the first or second control information.

12. A lens apparatus comprising:

movable lens means for forming an object image on a predetermined plane while moving along an optical axis;

drive means for driving said movable lens means;

connection means for detachably attaching an external device;

detection means for detecting attachment/detachment of said external device;

first storage means for storing control information for controlling a position of said movable lens means when said external device is attached;

second storage means for storing correction data for correcting the control information; and

control means for reading out contents of said first and/or second storage means in accordance with a detection result of said detection means, and controlling said drive means using the control information when said external device is not attached or using control information obtained by correcting the control information by the correction data when said external device is attached.

13. The apparatus according to claim 12, further comprising selection means for selecting whether or not said control means uses the correction data when said external device is attached.

14. The apparatus according to claim 12, wherein said external device has a zoom lens, and the correction data is difference information between the control information and control information required when said external device is attached.

15. The apparatus according to claim 12, wherein said external device has a zoom lens.

16. The apparatus according to claim 12, wherein said second storage means comprises a rewritable storage

device.

17. The apparatus according to claim 12, wherein said external device comprises an extender for changing a focal length of a lens.

18. The apparatus according to claim 17, wherein said first storage means stores lens moving locus information for correcting a focal plane position which changes upon zooming, when said extender is attached.

19. The apparatus according to claim 18, wherein said second storage means stores lens moving locus information for correcting a focal plane position which changes upon zooming, when said extender is not attached.

20. A computer-readable storage medium storing a program for executing:

a sequence of detecting if an external device is attached; and

a sequence of controlling a position of a movable lens using first control information when it is detected that the external device is not attached, and controlling the position of the movable lens using second control information when it is detected that the external device is attached.

21. A computer-readable storage medium storing a program for executing:

a sequence of detecting if an external device is attached; and

a sequence of controlling a position of a movable lens using control information when it is detected that the external device is not attached, and controlling the position of the movable lens using control information obtained by correcting the control information by correction data when it is detected that the external device is attached.

22. A computer-readable storage medium storing correction data for correcting control information that controls a position of a movable lens when an external device is attached to a lens apparatus having a movable lens.

23. A computer-readable storage medium storing correction data for correcting control information that controls a position of a movable lens when an external apparatus is attached to a lens apparatus having the movable lens.

24. An imaging apparatus which has a lens system including a zoom lens group for changing a field angle and a focus compensation lens group having both a function of correcting a change in focal plane position upon movement of said zoom lens group and a focus adjustment function, and storage means for storing a locus that represents a positional relationship between said zoom lens group and focus compensation lens group in an in-focus state in correspondence with an object

distance, and moves said zoom lens group and focus compensation lens group to trace the locus stored in said storage means upon zooming, comprising:

generation means for generating a video signal by photoelectrically converting an optical image obtained via said lens system;

discrimination means for discriminating an in-focus level and a direction to drive to reach an in-focus point by detecting focus states at a predetermined period from the video signal generated by said generation means and comparing the focus states upon zooming; and

determination means for determining the period on the basis of a moving speed of said zoom lens group.

25. The apparatus according to claim 24, wherein said determination means divides a period of processing for detecting the focus state by the moving speed of said zoom lens group to obtain a quotient, and determines an in-focus level extracted in an extraction period n extraction periods back (n = the quotient) as an in-focus level to be compared with the currently discriminated in-focus level.

26. The apparatus according to claim 24, wherein said lens system comprises an exchangeable lens system.

27. The apparatus according to claim 24, wherein said lens system comprises an exchangeable lens system, and

said discrimination means detects a vertical scanning period of the video signal generated by said generation means, which is mounted on an imaging apparatus main body, on the basis of television format information obtained from the imaging apparatus main body via a communication.

28. The apparatus according to claim 24, wherein said lens system comprises an exchangeable lens system, and said discrimination means obtains a vertical scanning period of the video signal generated by said generation means, which is mounted on an imaging apparatus main body, via a communication.

29. The apparatus according to claim 24, wherein driving of said zoom lens group and focus compensation lens group is controlled by a stepping motor.

30. An imaging method for an imaging apparatus which has a lens system including a zoom lens group for changing a field angle and a focus compensation lens group having both a function of correcting a change in focal plane position upon movement of said zoom lens group and a focus adjustment function, and storage means for storing a locus that represents a positional relationship between said zoom lens group and focus compensation lens group in an in-focus state in correspondence with an object distance, and moves said zoom lens group and focus compensation lens group to

trace the locus stored in said storage means upon zooming, comprising:

the generation step of generating a video signal by photoelectrically converting an optical image obtained via said lens system;

the discrimination step of discriminating an in-focus level and a direction to drive to reach an in-focus point by detecting focus states at a predetermined period from the video signal generated in the generation step and comparing the focus states upon zooming; and

the determination step of determining the period on the basis of a moving speed of said zoom lens group.

31. The method according to claim 30, wherein the determination step includes the step of dividing a period of processing for detecting the focus state by the moving speed of said zoom lens group to obtain a quotient, and determining an in-focus level extracted in an extraction period n extraction periods back (n = the quotient) as an in-focus level to be compared with the currently discriminated in-focus level.

32. The method according to claim 30, wherein said lens system comprises an exchangeable lens system.

33. The method according to claim 30, wherein said lens system comprises an exchangeable lens system, and the discrimination step includes the step of detecting a vertical scanning period of the video signal generated

in the generation step, which is installed on an imaging apparatus main body, on the basis of television format information obtained from the imaging apparatus main body via a communication.

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34. The method according to claim 30, wherein said lens system comprises an exchangeable lens system, and the discrimination step includes the step of obtaining a vertical scanning period of the video signal generated in the generation step, which is installed on an imaging apparatus main body, via a communication.

35. The method according to claim 30, wherein driving of said zoom lens group and focus compensation lens group is controlled by a stepping motor.

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36. A storage medium which is used in an imaging apparatus having a lens system including a zoom lens group for changing a field angle and a focus compensation lens group having both a function of correcting a change in focal plane position upon movement of said zoom lens group and a focus adjustment function, and storage means for storing a locus that represents a positional relationship between said zoom lens group and focus compensation lens group in an in-focus state in correspondence with an object distance, and which stores a program for moving said zoom lens group and focus compensation lens group to trace the locus stored in said storage means upon zooming, said

program stored in said storage medium including:

a generation routine for generating a video signal by photoelectrically converting an optical image obtained via said lens system;

a discrimination routine for discriminating an in-focus level and a direction to drive to reach an in-focus point by detecting focus states at a predetermined period from the video signal generated in the generation routine and comparing the focus states upon zooming; and

a determination routine for determining the period on the basis of a moving speed of said zoom lens group.

37. The medium according to claim 36, wherein the determination routine includes a routine for dividing a period of processing for detecting the focus state by the moving speed of said zoom lens group to obtain a quotient, and determining an in-focus level extracted in an extraction period n extraction periods back (n = the quotient) as an in-focus level to be compared with the currently discriminated in-focus level.

38. The medium according to claim 36, wherein said lens system comprises an exchangeable lens system.

39. The medium according to claim 36, wherein said lens system comprises an exchangeable lens system, and the discrimination routine includes the routine for detecting a vertical scanning period of the video signal generated in the generation routine, which is installed

on an imaging apparatus main body, on the basis of television format information obtained from the imaging apparatus main body via a communication.

40. The medium according to claim 36, wherein said lens system comprises an exchangeable lens system, and the discrimination routine includes a routine for obtaining a vertical scanning period of the video signal generated in the generation routine, which is installed on an imaging apparatus main body, via a communication.

41. The medium according to claim 36, wherein driving of said zoom lens group and focus compensation lens group is controlled by a stepping motor.

42. A lens control apparatus comprising:

a zoom lens;

a focus lens;

focus detection means for detecting a focus state from a video signal at a predetermined period;

focus control means for controlling said focus lens on the basis of an output from said focus detection means; and

control means for changing the period on the basis of a moving speed of said zoom lens.

43. The apparatus according to claim 42, wherein said focus detection means normally detects the focus state at a period of a vertical synchronization signal, and said control means controls to prolong the period when

the moving speed of said zoom lens is low.

44. A lens control method comprising:

the focus detection step of detecting a focus state from a video signal at a predetermined period in an imaging apparatus having a zoom lens and focus lens;

the focus control step of controlling said focus lens on the basis of an output from the focus detection step; and

the control step of changing the period on the basis of a moving speed of said zoom lens.

45. The method according to claim 44, wherein the focus detection step includes the step of normally detecting the focus state at a period of a vertical synchronization signal, and the control step includes the step of controlling to prolong the period when the moving speed of said zoom lens is low.

46. An imaging apparatus which has a lens system including a zoom lens group for changing a field angle and a focus compensation lens group having both a function of correcting a change in focal plane position upon movement of said zoom lens group and a focus adjustment function, and storage means for storing a locus that represents a positional relationship between said zoom lens group and focus compensation lens group in an in-focus state in correspondence with an object distance, and moves said zoom lens group and focus

compensation lens group to trace the locus stored in said storage means upon zooming, comprising:

selection means for selecting the locus on the basis of positions of said zoom lens group and focus compensation lens group;

detection means for detecting an in-focus level; and

control means for determining a moving amount of said focus compensation lens group on the basis of the selected locus information, the in-focus level detected by said detection means upon zooming, and a moving speed of said zoom lens group.

47. The apparatus according to claim 46, wherein said control means controls the moving amount of said focus compensation lens to be inversely proportional to the in-focus level and the moving speed of said zoom lens group.

48. The apparatus according to claim 46, wherein said control means selects a new locus from the locus selected by said selection means by calculation processing.

49. The apparatus according to claim 46, wherein said control means has storage means for storing the moving amount of the focus compensation lens group corresponding to the in-focus level and the moving speed of said zoom lens group as information for selecting a

new locus.

50. The apparatus according to claim 46, wherein said control means selects a new locus to change the moving amount of said focus compensation lens group stepwise in correspondence with the in-focus level and the moving speed of said zoom lens group.

51. The apparatus according to claim 46, wherein said control means selects a new locus to change the moving amount of said focus compensation lens group continuously in correspondence with the in-focus level and the moving speed of said zoom lens group.

52. The apparatus according to claim 46, wherein said lens system comprises an exchangeable lens system, and said detection means and control means are mounted on said exchangeable lens system.

53. The apparatus according to claim 46, wherein said lens system comprises an exchangeable lens system, and said detection means and control means are mounted on an imaging apparatus main body.

54. An imaging method for an imaging apparatus which has a lens system including a zoom lens group for changing a field angle and a focus compensation lens group having both a function of correcting a change in focal plane position upon movement of said zoom lens group and a focus adjustment function, and storage means for storing a locus that represents a positional

relationship between said zoom lens group and focus compensation lens group in an in-focus state in correspondence with an object distance, and moves said zoom lens group and focus compensation lens group to trace the locus stored in said storage means upon zooming, comprising:

the selection step of selecting the locus on the basis of positions of said zoom lens group and focus compensation lens group;

the detection step of detecting an in-focus level; and

the control step of determining a moving amount of said focus compensation lens group on the basis of the selected locus information, the in-focus level detected in the detection step upon zooming, and a moving speed of said zoom lens group.

55. The method according to claim 54, wherein the control step includes the step of controlling the moving amount of said focus compensation lens to be inversely proportional to the in-focus level and the moving speed of said zoom lens group.

56. The method according to claim 54, wherein the control step includes the step of selecting a new locus from the locus selected in the selection step by calculation processing.

57. The method according to claim 54, wherein the

control step has the storage step of storing the moving amount of the focus compensation lens group corresponding to the in-focus level and the moving speed of said zoom lens group as information for selecting a new locus.

58. The method according to claim 54, wherein the control step includes the step of selecting a new locus to change the moving amount of said focus compensation lens group stepwise in correspondence with the in-focus level and the moving speed of said zoom lens group.

59. The method according to claim 54, wherein the control step includes the step of selecting a new locus to change the moving amount of said focus compensation lens group continuously in correspondence with the in-focus level and the moving speed of said zoom lens group.

60. The method according to claim 54, wherein said lens system comprises an exchangeable lens system, and the detection step and control step are installed on said exchangeable lens system.

61. The method according to claim 54, wherein said lens system comprises an exchangeable lens system, and the detection step and control step are installed on an imaging apparatus main body.

62. A storage medium which is used in an imaging apparatus having a lens system including a zoom lens group for changing a field angle and a focus

compensation lens group having both a function of correcting a change in focal plane position upon movement of said zoom lens group and a focus adjustment function, and storage means for storing a locus that represents a positional relationship between said zoom lens group and focus compensation lens group in an in-focus state in correspondence with an object distance, and which stores a program for moving said zoom lens group and focus compensation lens group to trace the locus stored in said storage means upon zooming, said program including:

a selection routine for selecting the locus on the basis of positions of said zoom lens group and focus compensation lens group;

a detection routine for detecting an in-focus level; and

a control routine for determining a moving amount of said focus compensation lens group on the basis of the selected locus information, the in-focus level detected in the detection routine upon zooming, and a moving speed of said zoom lens group.

63. The medium according to claim 62, wherein the control routine includes a routine for controlling the moving amount of said focus compensation lens to be inversely proportional to the in-focus level and the moving speed of said zoom lens group.

64. The medium according to claim 62, wherein the control routine includes a routine for selecting a new locus from the locus selected in the selection routine by calculation processing.

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65. The medium according to claim 62, wherein the control routine has a storage routine for storing the moving amount of the focus compensation lens group corresponding to the in-focus level and the moving speed of said zoom lens group as information for selecting a new locus.

66. The medium according to claim 62, wherein the control routine includes a routine for selecting a new locus to change the moving amount of said focus compensation lens group stepwise in correspondence with the in-focus level and the moving speed of said zoom lens group.

67. The medium according to claim 62, wherein the control routine includes a routine for selecting a new locus to change the moving amount of said focus compensation lens group continuously in correspondence with the in-focus level and the moving speed of said zoom lens group.

68. The medium according to claim 62, wherein said lens system comprises an exchangeable lens system, and the detection routine and control routine are executed by said exchangeable lens system.

69. The medium according to claim 62, wherein said lens system comprises an exchangeable lens system, and the detection routine and control routine are executed by an imaging apparatus main body.

70. A lens control apparatus comprising:

a zoom lens;

a focus lens having a function of correcting a change in focal plane position upon movement of said zoom lens;

storage means for storing a locus representing a positional relationship between said zoom lens and focus lens in an in-focus state in correspondence with an object distance;

detection means for detecting an in-focus level;

selection means for selecting the locus on the basis of position information of said zoom lens and focus lens; and

control means for calculating a moving amount of said focus lens to move said focus lens according to the locus on the basis of the locus information selected by said selection means and the in-focus level detected by said detection means, and changing the moving amount of said focus lens in correspondence with a moving speed of said zoom lens.

71. The apparatus according to claim 70, wherein said control means changes the moving amount of said focus

lens in correspondence with the moving speed of said zoom lens, and controls to decrease the moving amount of said focus lens as the moving speed of said zoom lens is higher.

72. The apparatus according to claim 70, wherein said control means controls to increase the moving amount of said focus lens as the in-focus level detected by said detection means is lower, and to decrease the moving amount of said focus lens as the moving speed of said zoom lens is higher.

73. A lens control apparatus comprising:

a zoom lens;

a focus lens having a function of correcting a change in focal plane position upon movement of said zoom lens;

storage means for storing a locus representing a positional relationship between said zoom lens and focus lens in an in-focus state in correspondence with an object distance;

detection means for detecting an in-focus level; and

control means for selecting the locus in accordance with position information of said zoom lens and focus lens, the in-focus level detected by said detection means, and a moving speed of said zoom lens, and controlling a moving amount which makes said focus lens

trace the locus.

74. The apparatus according to claim 73, wherein said control means changes the moving amount of said focus lens in correspondence with the moving speed of said zoom lens, and controls to decrease the moving amount of said focus lens as the moving speed of said zoom lens is higher.

75. The apparatus according to claim 73, wherein said control means controls to increase the moving amount of said focus lens as the in-focus level detected by said detection means is lower, and to decrease the moving amount of said focus lens as the moving speed of said zoom lens is higher.